

Remarks

The following remarks are provided in further support of the Claims.

Rejections

Rejection Under 35 U.S.C. §103(a)

Claims 1-8 and 11-13 are rejected under 35 USC 103(a) as being unpatentable over Heitman et al. (US 5,102,031).

Objections

Claims 9-10 are objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Allowable Subject Matter

Claim 14 is allowed.

I. DISCUSSION: (Rejection Under 35 USC 103(a), Heitman

Heitman discusses a method where a braze filler alloy is permanently deposited to the region of an alloy component to be brazed by using an electrospark deposition method after which the mating components are conventionally brazed together. See for example, Heitman, Col 4, lines 6-14, "We are the first to permanently deposit braze filler alloy to specific regions of a nickel based alloy component using an electrospark deposition technique, so that the braze alloy and nickel-based base metal are metallurgically bonded prior to the actual brazing operation. Mating components, each having the metallurgically bonded layer of braze alloy which has been deposited using the electrospark deposition method, are then conventionally brazed together." In the method of Heitman, the electrospark technique is not used as the technique for achieving brazing of the components but is only used to deposit the braze filler onto a specified region. See also Heitman, Col

3, lines 31-39, "the braze filler alloy is specifically applied to desired regions without the need for laborious masking and nickel plating techniques. The electrode made from the braze filler alloy can be manipulated manually or mechanically, allowing for complete control over the deposition of the braze filler metal to the base metal. In addition, upon contact between the deposited braze filler alloy and the base metal, a permanent metallurgical bond is formed between the metals." The filler forms a permanent bond at the location it is deposited.

In the method of the present invention, as specified in claim 1, the filler material is placed near a discontinuity (that is, the area where brazing is ultimately to take place); see lines 4-6 of claim 1: "pre-placed filler metal situated near said discontinuity such that said melted pre-placed filler metal is drawn into said discontinuity; ". Upon application of a current, the filler material is not permanently bonded as in Heitman but in fact becomes mobile and can move into the discontinuity wherein the current can also be used to effect brazing. Heitman only uses an electrospark technique to permanently deposit the filler at a predetermine location where brazing is to take place.

Additionally, in Claim 1, lines 2-4, the method specifies "applying an alternating current across a work piece, said work piece having a discontinuity, to resistively heat a pre-placed filler metal to a temperature sufficient to melt said pre-placed filler metal"; where the method of the present invention heats the pre-placed to melt the filler to induce mobilization of the now fluid filler wherein Heitman employs an electrospark technique to solidify the filler in the spot where it was deposited and then braze the components.

Therefore, the method of the Heitman does not teach or suggest a method for applying an alternating current across a work piece to resistively heat the pre-placed filler metal to melt the filler metal, where the pre-placed filler metal is situated near the discontinuity but not on the surface of the discontinuity such that the melted pre-placed filler metal is drawn into said discontinuity, as specified in claims 1-8 and 11-13.

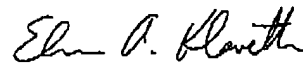
II. DISCUSSION (Objections)

As discussed in Section I, Claim 1 is considered to be in condition for allowance because Heitman does not teach nor suggest the method of Claim 1. Claims 9-10, dependent on claim 1, is also considered in condition for allowance.

CONCLUSION

Applicants have responded to each and every rejection raised by the Office and, in concurrence with the Office, consider that claims 1-14 are now in condition for allowance. Applicants request expeditious processing to issuance.

Respectfully submitted,



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